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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/745,896	12/21/2000	Yoshitake Ishii	99292	2637

22476 7590 01/15/2004

HAUGEN LAW FIRM
SUITE 1130 - TCF TOWER
121 SOUTH EIGHTH STREET
MINNEAPOLIS, MN 55402

EXAMINER

MANOHARAN, VIRGINIA

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 01/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/745,896

Applicant(s)

ISHII ET AL.

Examiner

Virginia Manoharan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 & 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer, Jr. et al (5,759,358) in view of Fauconet et al (6,352,619).

Bauer, Jr. et al discloses substantially the process as claimed. That is, Bauer discloses or at least suggests the "... method for purification of acrylic acid, which comprises the step of distilling a crude acrylic acid containing furfural and acrolein as impurities wherein the concentration ratio of furfural to acrolein by weight in said crude acrylic, is adjusted so as to satisfy the following equation:

$$(\text{furfural concentration by weight})/(\text{acrolein concentration by weight}) \leq 100$$
" as broadly claimed in claim 1. Bauer further discloses or suggests that "... the concentration ratio of furfural to acrolein by weight in said crude acrylic acid is adjusted so as to satisfy the following equation:

$$2 \leq (\text{furfural concentration by weight})/(\text{acrolein concentration by weight}) \leq 30$$
" as broadly claimed in claim 2. See e.g. the Bauer's Examples at columns 11-12; the abstract; at column 8, lines 44-56; and the Examples at columns 8-15; wherein there is shown ≤ 100 furfural to acrolein ratio, i.e., with 85 ppm acrolein and 240 ppm of furfural

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provided in Example 1. Note also the abstract disclosing "selectively reducing acrolein and furfural."

Bauer et al differs from the claimed invention in that claim 1, for example, recites "...charged with an aldehyde treatment chemical".

However, said limitation is deemed not to constitute a patentable distinction inasmuch as it is a known expediency in the art as taught by Fauconet et al

That is, Fauconet et al teaches that a distillation process with aldehyde treatment; wherein hydrazine compound is used in said aldehyde treatment is known in the art .

To incorporate the Fauconet's teaching, supra to the process of Bauer would have been obvious to one of ordinary skill in the art since Bauer suggests the hydrazine compound at column 23, Example 12; and at column 20, line 14. See also the advantages taught by Fauconet et al at column 3, lines 60-66.

Claims 3-4 are deemed to be result effective—variables which ordinary are within the skilled of the art. Nonetheless they are rendered obvious e.g., Table XII in column 23, and at column 6, lines 61-67 through column 7, lines 1-3 of the Fauconet et al reference.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure;

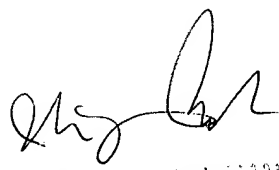
a. Herbert et al '227 discloses the separation of (meth) acrylic acid by rectification.

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- b. Dockner et al, and Herbert et al '597 both disclose the purification of crude (meth) acrylic acid.
- c. Shimizu et al describes a method for providing acrylic acid.
- d. Bauer, Jr. et al '892 discloses a process for pure grade acrylic acid, purification.

Any inquiry concerning this communication from the examiner should be directed to V. Manoharan whose telephone number is 571-272-1450. The examiner can generally be reached on Tuesday--Friday from 7:30 a.m. to 6:00 p.m..

V. Manoharan/dh
January 7, 2004


V. Manoharan
1/7/04